

- 2 -

Application Serial No. 0675-0031
Attorney Docket No. 09/680,323

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A very thin fan motor with heat sink attached which is a fan motor mounted in various kinds of electronic equipment that need to radiate heat, for the purpose of using air for a cooling effect;

characterized by having a fan motor mechanism that comprises a heat plate that supports a rotor fan that can rotate in a central position and that has a contact surface that matches the shape of an external surface of an object to be cooled, rotor magnets that are part of the rotor fan and are positioned around a periphery of the rotor fan, and a stator coil substrate;

by having blades of the rotor fan each formed in a same gentle arc, and in an inner portion of an inner/outer two-step multi-blade form of the rotor fan, the blade being set at a first angle to move the air through openings in the direction of rotational thrust toward an air intake, and outward from a central section, the blade which is set at a second angle different than said first angle pushing the air in the radial direction of rotation, which is toward the outer periphery of the rotor fan, and the outer step that reaches beyond a raised central portion of the heat plate reaching down toward the object being cooled, in such a way that the outer step of the arced blades of the rotor fan is near to stacked heat radiation fins, the rotor fan with the two-step multi-blade form being shaped like an inverted saucer;

by having multiple thin metal heat radiation fins with excellent thermal conductivity arranged in parallel at fixed intervals above the heat plate outside the rotor fan as cooling heat-radiation fins;

and by combining the function of cooling heat sink with the heat radiation fins that conduct the heat absorbed from the heat plate and radiate it away by the action of the air moved by the rotor fan.

- 3 -

Application Serial No. 0675-0031
Attorney Docket No. 09/680,323

2. (Previously Presented) A very thin fan motor with heat sink attached as described in claim 1 above, in which multiple heat radiation fins each having an opening large enough to accommodate with adequate turning room a rotor fan, are stacked on the heat plate, an air intake with a diameter smaller than the diameter of the rotor fan being placed over the center of the heat plate, and coils of a stator unit that is molded of a polymer together with a circuit board around a periphery of the air intake being located facing the heat plate, and the magnets of the rotor unit that includes the supported rotor fan being driven magnetically.

3. (Previously Presented) A very thin fan motor with heat sink attached as described in claim 1 or 2 above, in which multiple heat radiation fins are stacked with a given interval between them and are connected by a heat conducting material or fittings, and in at least two diagonally opposed corners of the multiple heat radiation fins, a heat sink unit and a stator unit are fixed together in a simple assembly process.

4. (Previously Presented) A very thin fan motor with heat sink attached as described in claim 1, in which there is a heat plate formed of a material with excellent thermal conductivity or a material that is partially diamond crystal, and the heat sink assembled on the heat plate is a stack of metal heat radiation fins made of copper or aluminum.

5. (Previously Presented) A very thin fan motor with heat sink attached as described in claim 2, in which there is a heat plate formed of a material with excellent thermal conductivity or a material that is partially diamond crystal, and the heat sink assembled on the heat plate is a stack of metal heat radiation fins made of copper or aluminum.

- 4 -

Application Serial No. 0675-0031
Attorney Docket No. 09/680,323

6. (Previously Presented) A very thin fan motor with heat sink attached as described in claim 3, in which there is a heat plate formed of a material with excellent thermal conductivity or a material that is partially diamond crystal, and the heat sink assembled on the heat plate is a stack of metal heat radiation fins made of copper or aluminum.

7. (Previously Presented) A very thin fan motor with heat sink attached as described in one of claims 4 through 5 above, wherein the material with excellent thermal conductivity is precious metal or copper.

8. (Previously Presented) A fan motor for radiating heat from electronic equipment, the fan motor comprising:

multiple heat radiation fins each having an opening large enough to accommodate with adequate turning room a rotor fan, stacked on a heat plate, an air intake with a diameter smaller than the diameter of the rotor fan being placed over the center of the heat plate, and coils of a stator unit that is molded of a polymer together with a circuit board around a periphery of the air intake being located facing the heat plate, and magnets of the rotor unit that includes the supported rotor fan being driven magnetically;

wherein said rotor fan comprises a plurality of blades, each blade comprising a radially inner portion and a radially outer portion;

wherein the inner portion of each blade is set at a first angle which is adapted to move air in a substantially axial direction; and

wherein the outer portion of each blade is set at a second angle different than said first angle which is adapted to push air in a substantially radial direction.

9. (Previously Presented) The fan motor of claim 8, wherein the second angle is substantially parallel to the axial direction.

- 5 -

Application Serial No. 0675-0031
Attorney Docket No. 09/680,323

10. (Previously Presented) A rotor fan for radiating heat from electronic equipment, the rotor fan comprising:

a plurality of blades, each blade having an inner portion and an outer portion;

wherein the inner portion of each blade is set at a first angle which is adapted to move air in a substantially axial direction; and

wherein the outer portion of each blade is set at a second angle different than said first angle which is adapted to push air in a substantially radial direction.

11. (Previously Presented) The rotor fan of claim 10, wherein the second angle is substantially parallel to the axial direction.